

DSGN dy DATE 3/29/78
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ENGINEERING DEPARTMENT
SUBJECT MILLINGTON N.J.
SOIL EROSION

SHEET NO. COVER
JOB MILLINGTON
78M-1

37219

ENGINEERING REPORT

78M-1

MILLINGTON, N.J.

P.H.C. / E.L.V.

APRIL 1978

ENGINEERING REPORT 78M - 1

PROBLEM: Soil erosion has occurred on the slopes of the embankment behind the Millington N.J. plant site.

RESULTS: Eroded ground cover and loss of vegetation.
Erosion sediment transport and deposition.
Uncovered trails of industrial solid waste.
Potential pollution problems.
Public unrest and damaged company image.

CAUSE: Erosion due to melt and storm water run-off.

SOLUTION: Provide storm water conduit system that redirects drainage flow to proper channels.
Replace eroded top soil with organic fill.
Reseed and re-establish ground cover.
Inform public agents of corrective plan.

SUMMARY: The problem is readily correctable with a reasonable degree of certainty to it's permanence.

The problem results from undirected storm run-off made more severe by poor down spouts, some lack of storm sewer continuity and the filling in of the old lagoon system.

The lack of activity at the plant allowed the problem to continue undetected by management, while also denying the public a point source of contact for information and relief.

Occupying the site and covering the opened areas, after re-establishing the storm water system and accomplishing a nominal amount of grading, covering and seeding will permanently resolve the problem.

DISCUSSION

The problem results basically from site inactivity and the inability of storm water to follow the water course previously established for the industrial water discharge system. (See Exhibit A).

This system was protected by a federal N.P.D.E.S. permit, was clearly established and functioned properly. (Exhibit B). It produced a clear clean water, void of solids and contaminants, and free of any B.O.D., toxicity or temperature problems. Periodic testing supports these statements with factual laboratory reports. The only element not within today's environmental standards was the pH or acidity measurement of this discharge. It was too alkaline, like the Passaic River water which was extracted for our process. It's a clear but very soft water, acting much like water that has been heavily dosed with Lime.

In vacating the site, the serpentine ditch network which conducted water to the two stage lagoon system was abandoned. The ditches and lagoons were filled and the site leveled, covered and seeded. (Exhibit C).

Lack of normal plant maintenance during the recent periods of inactivity also resulted in corrosive and storm weathering attack to rain gutters and down spouts on portions of the plant buildings. This storm water spills to the building foundation area where it joins with run-off from the municipal parking lot, the highway surface and high ground areas. These combined waters either enter the 6 inch drain under the front building or the 48 inch pipe under the back building. All these waters ultimately spill at the discharge of the 48 inch RCP and spill at the center of the high dump area. (Exhibit A).

When the plant was operational, this flow would have been directed to the lagoon system, discharging in the Northwest corner of the site near the Stonehouse Road bridge over the Passaic River.

With this lagoon system filled, the water now digs its own course and spills over the high bank. As time passes, this channeling becomes more defined and the water caused erosion more severe. (Exhibit D).

There are two other areas that have similarly developed but, since they apparently carry less water, the problem is less severe.

(Con't.)

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The visible effects of this storm drainage condition is an unsightly condition, particularly as viewed from the Somerset County site of the Passaic River. In addition, the water course scouring has removed considerable ground cover allowing erosion to begin and continue.

This erosion has deposited asbestos-cement residue on the low banks where, during high water flows in the Passaic River, it can become water bourne. (Exhibit E).

Several solutions were evaluated which all required the same basic first step. This is the reduction and redirection of the storm water drainage.

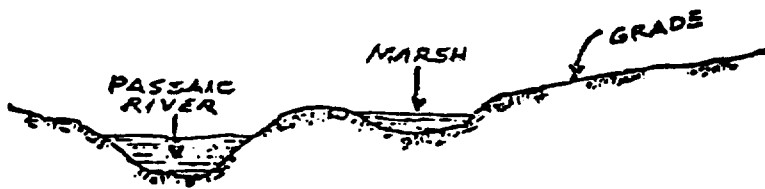
Any steps taken beyond this are simply varying degrees of changing the aesthetics of the property.

Cutting back the high bank is an obvious approach to improving site aesthetics. The sheer face of the high bank is alien to any site planner's designs. In addition, normal embankment design could not be accomplished in any manner that would duplicate what presently exists at Millington. The fact that it was so gradually developed with cement binder, and it so permanently existed for so many years is proof of the stability of this site despite the guideline factors of angle of repose, etc. that the site planner's handbooks contain.

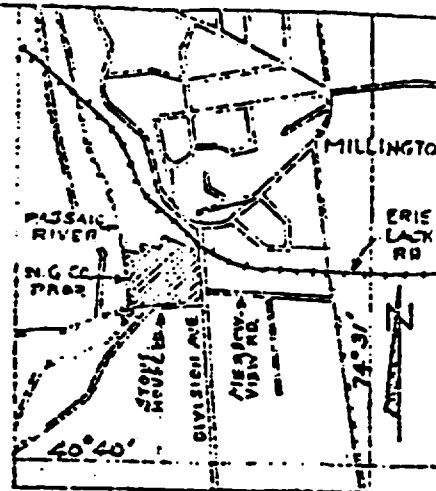
Even more important to consider is the environmental impact that slope reduction would have, even if it were feasible from the standpoint of standard construction methodology. Asbestos fines are not now a problem, particularly since, if exposed, they are wet and agglomerated. Any site reduction work would promote airbourne dry fiber, a highly hazardous condition.

The practical solution, after storm drainage correction, is refilling and reseeding the ditches, removal of the river bank sediment, and sand bagging the toe of the slope up to the high water line. (Exhibits F and G).

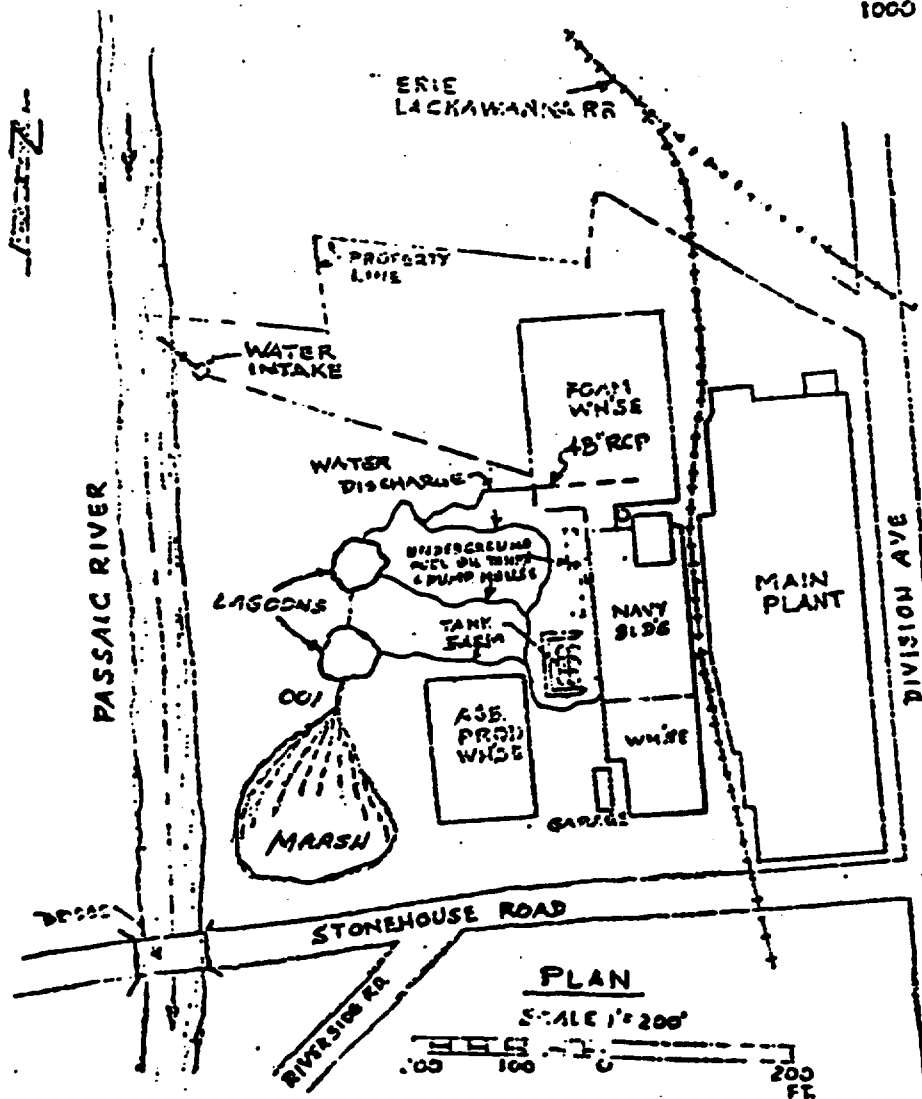
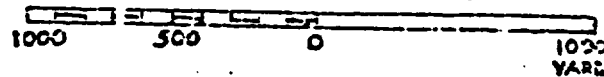
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PROFILE THRU RIVER AND MARSH

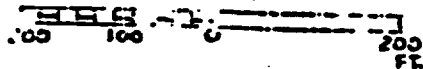


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PLAN

SCALE 1" = 200'



MEADOW VIEW RD.

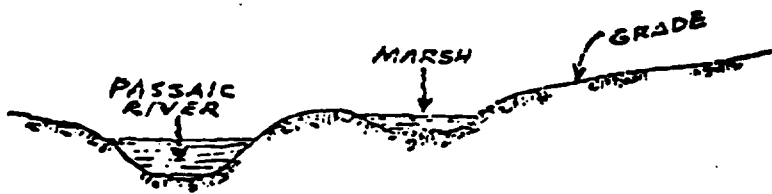
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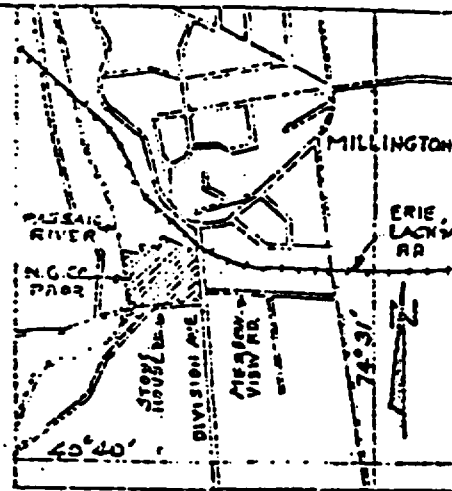
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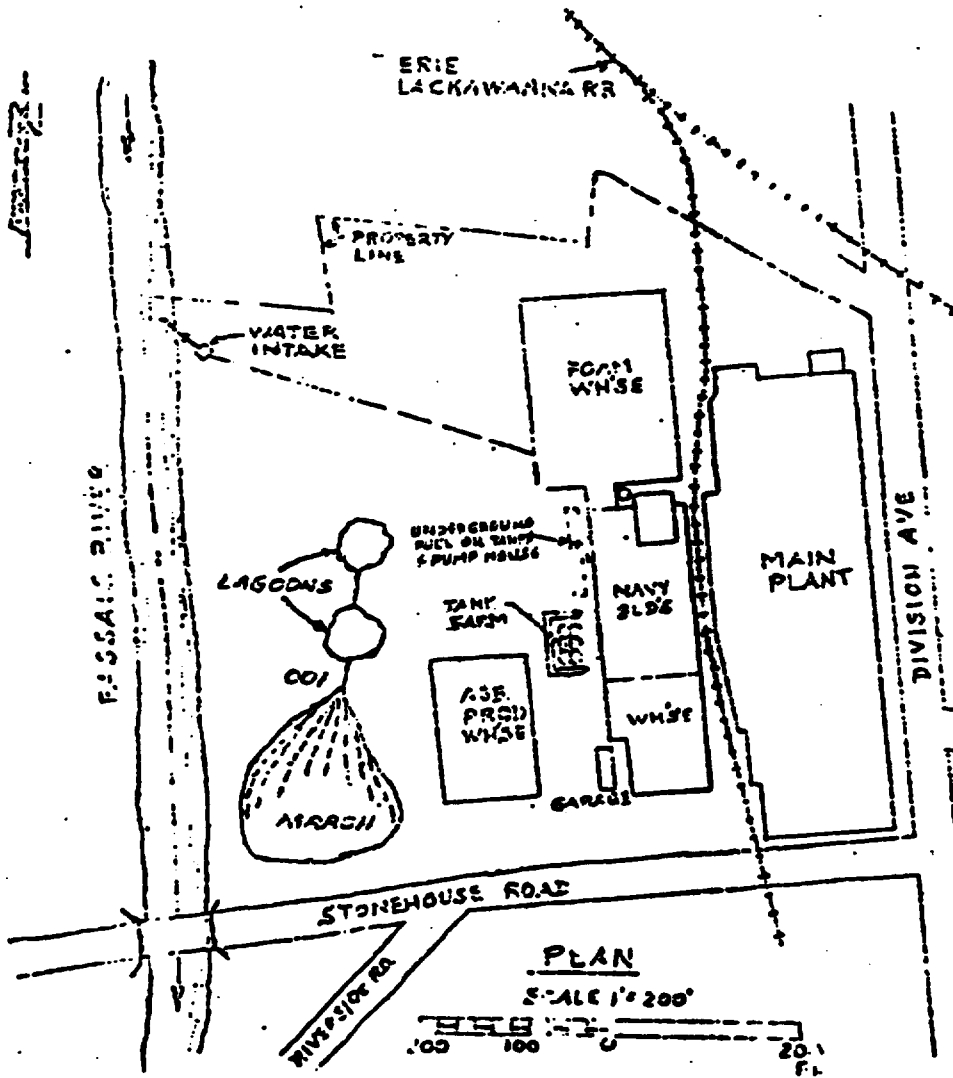
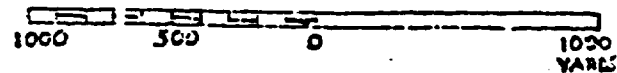
EXHIBIT 'A'
 ASB 002 0071



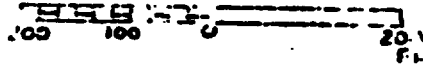
PROFILE THRU RIVER AND MARSH



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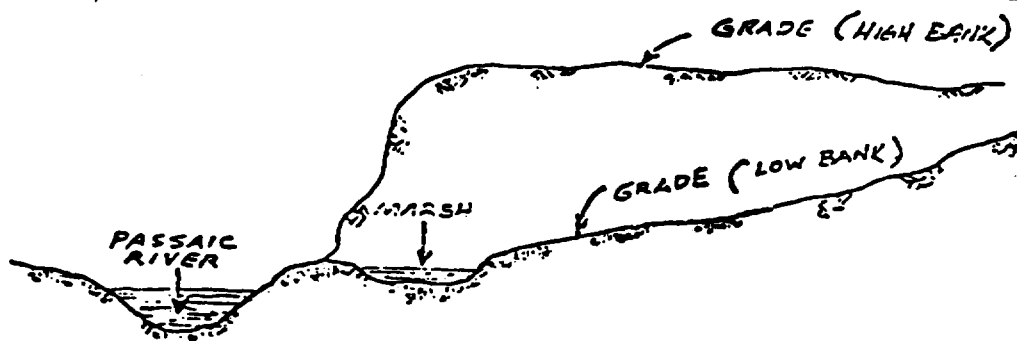
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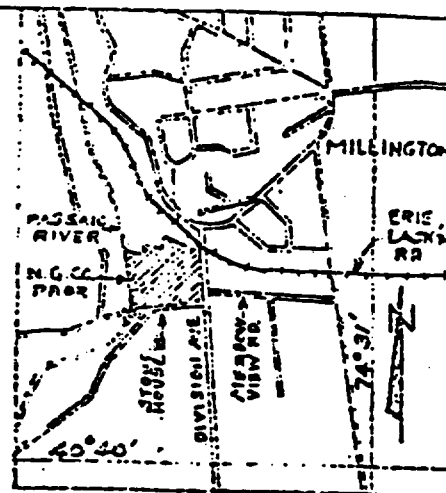
SHEET 1 OF 1
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EXHIBIT "B"

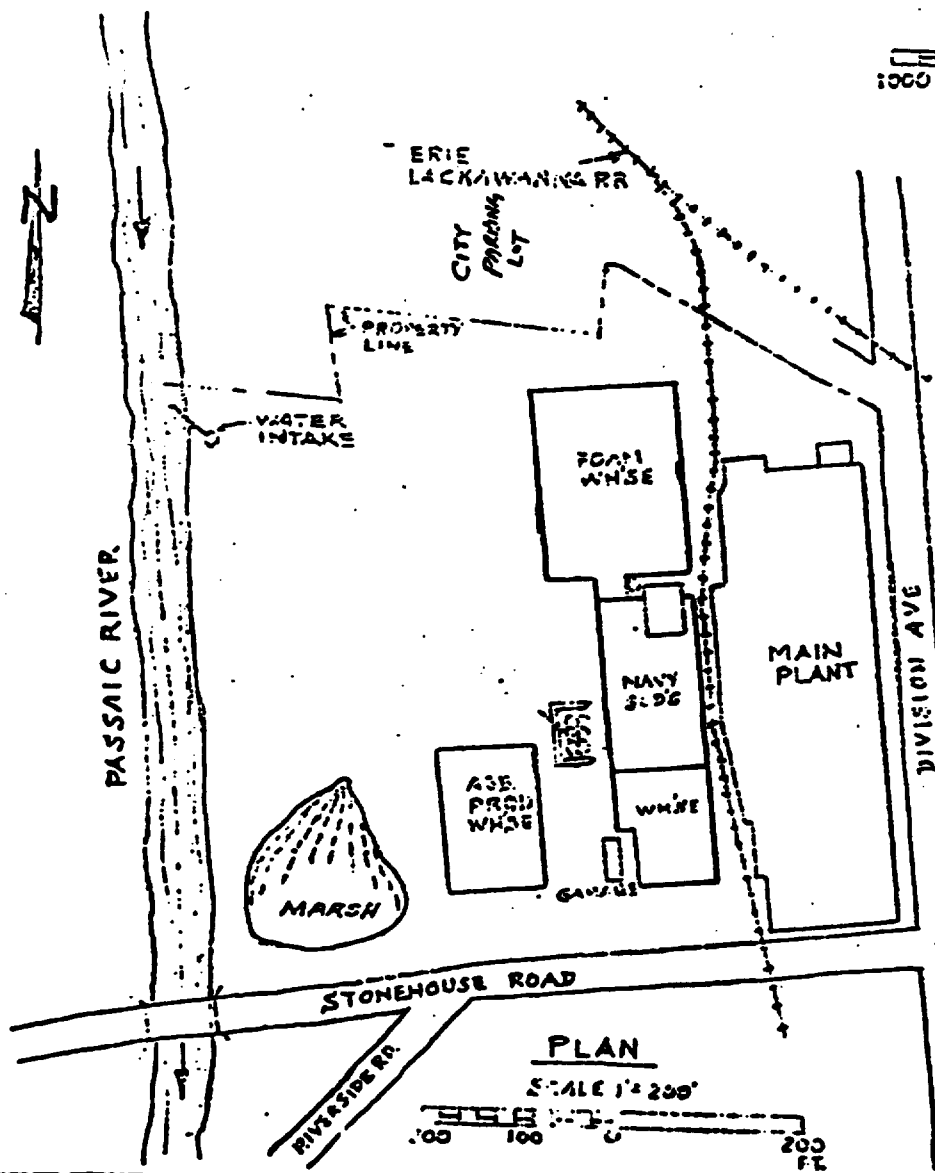
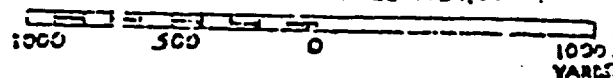
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PROFILE THRU RIVER AND MARSH

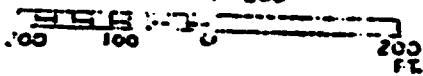


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PLAN

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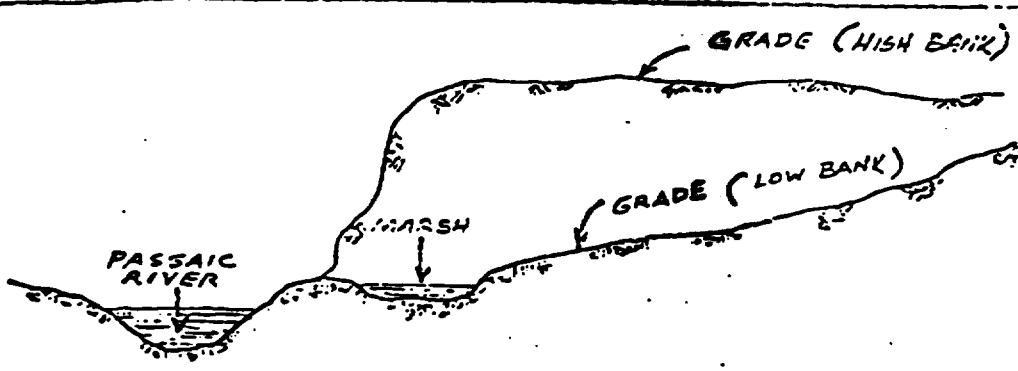


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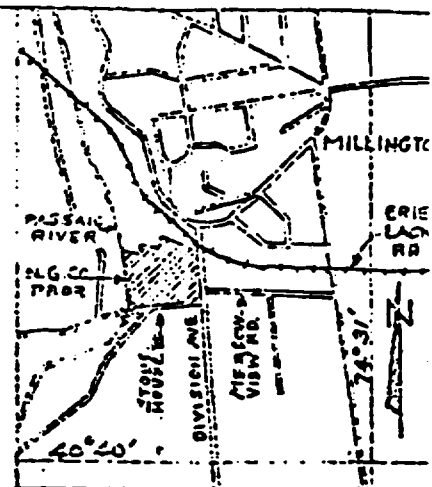
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SHEET 1 OF 1
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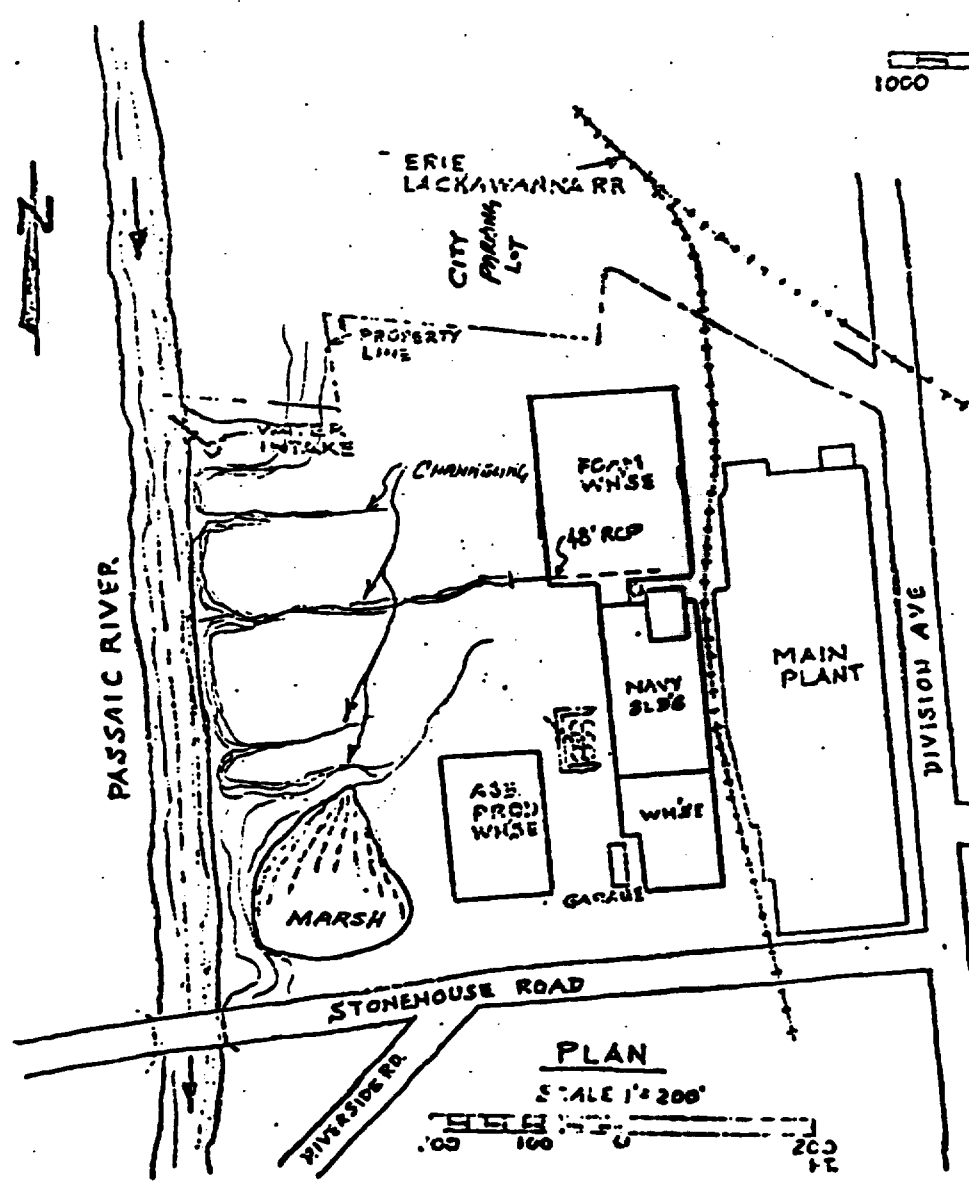
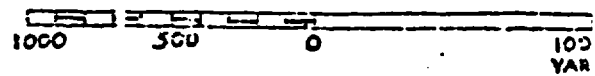
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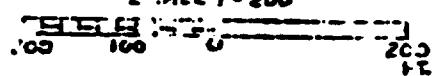
PROFILE THRU RIVER AND MARSH



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PLAN
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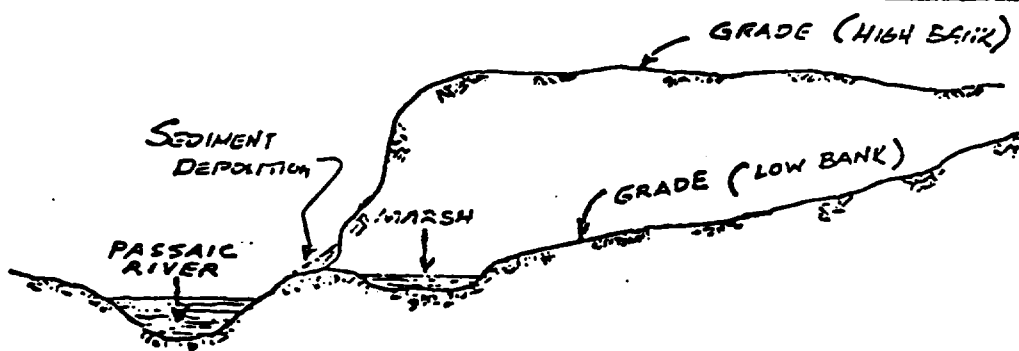
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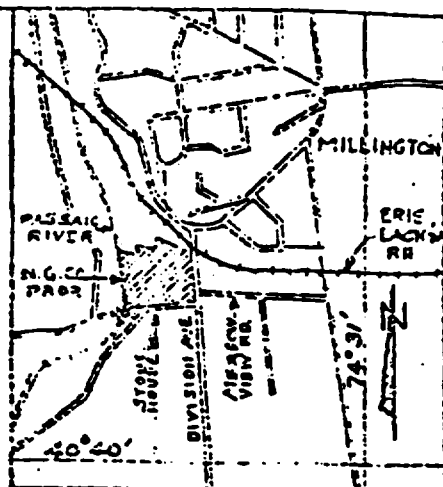
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SHEET 1 OF 4
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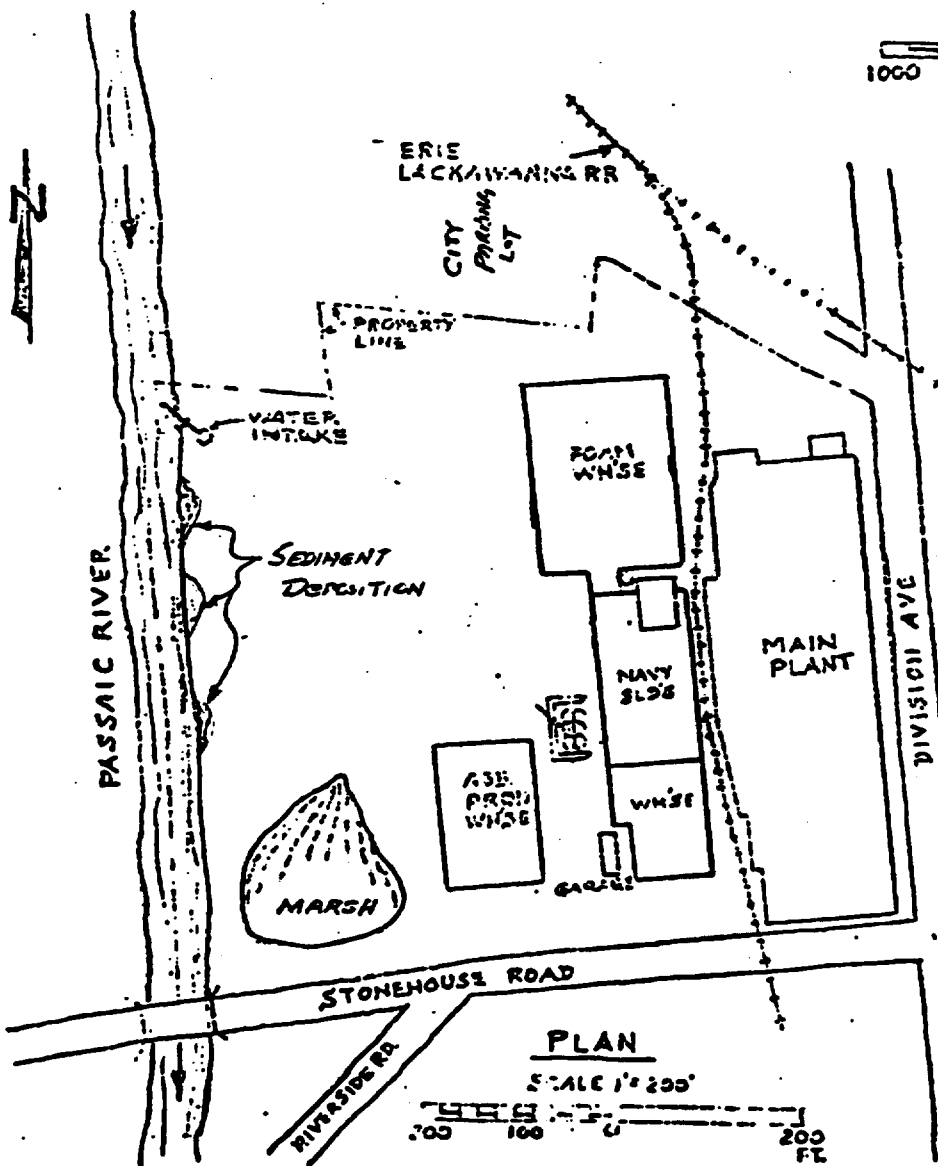
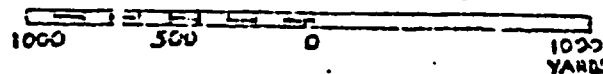
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PROFILE THRU RIVER AND MARSH

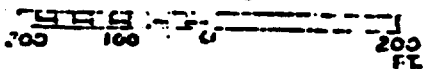


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PLAN

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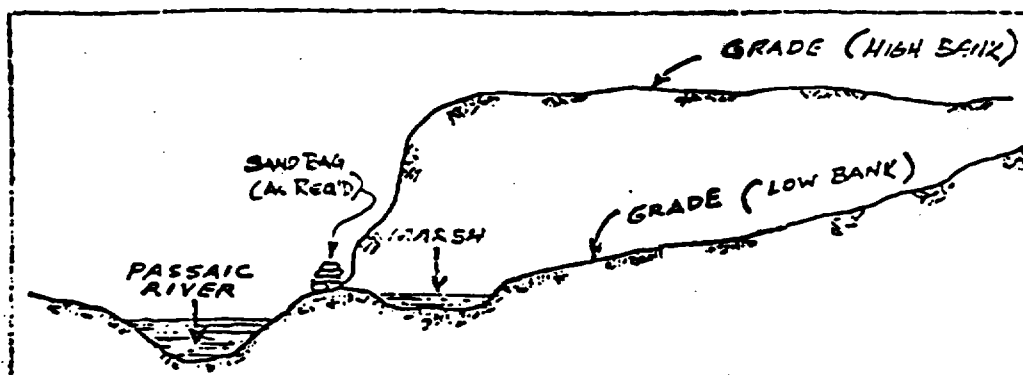
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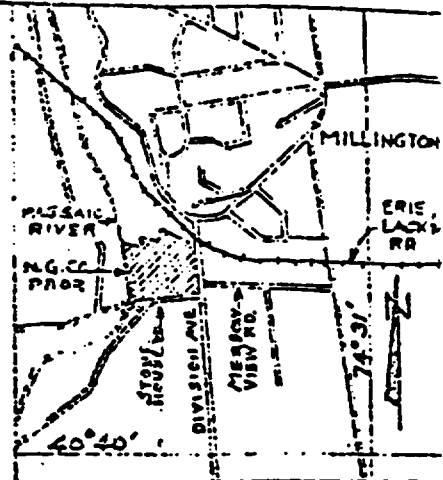
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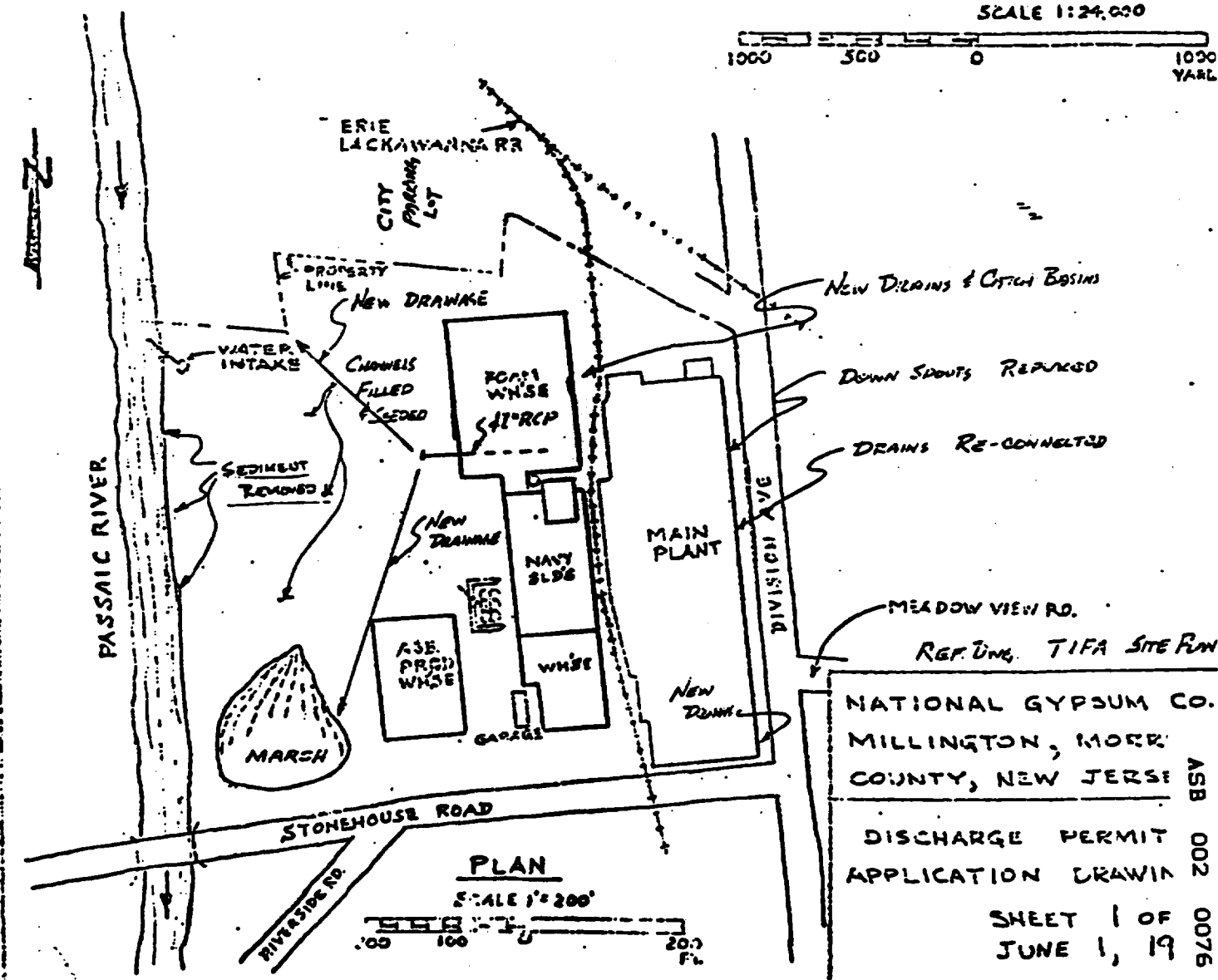
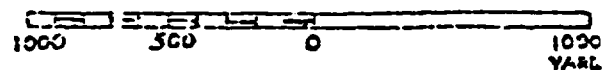
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PROFILE THRU RIVER AND MARSH



LOCATION MAP
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 A.M.S. SERIES V082
 SCALE 1:24,000



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 APPLICATION DRAWING

SHEET 1 OF
 JUNE 1, 19

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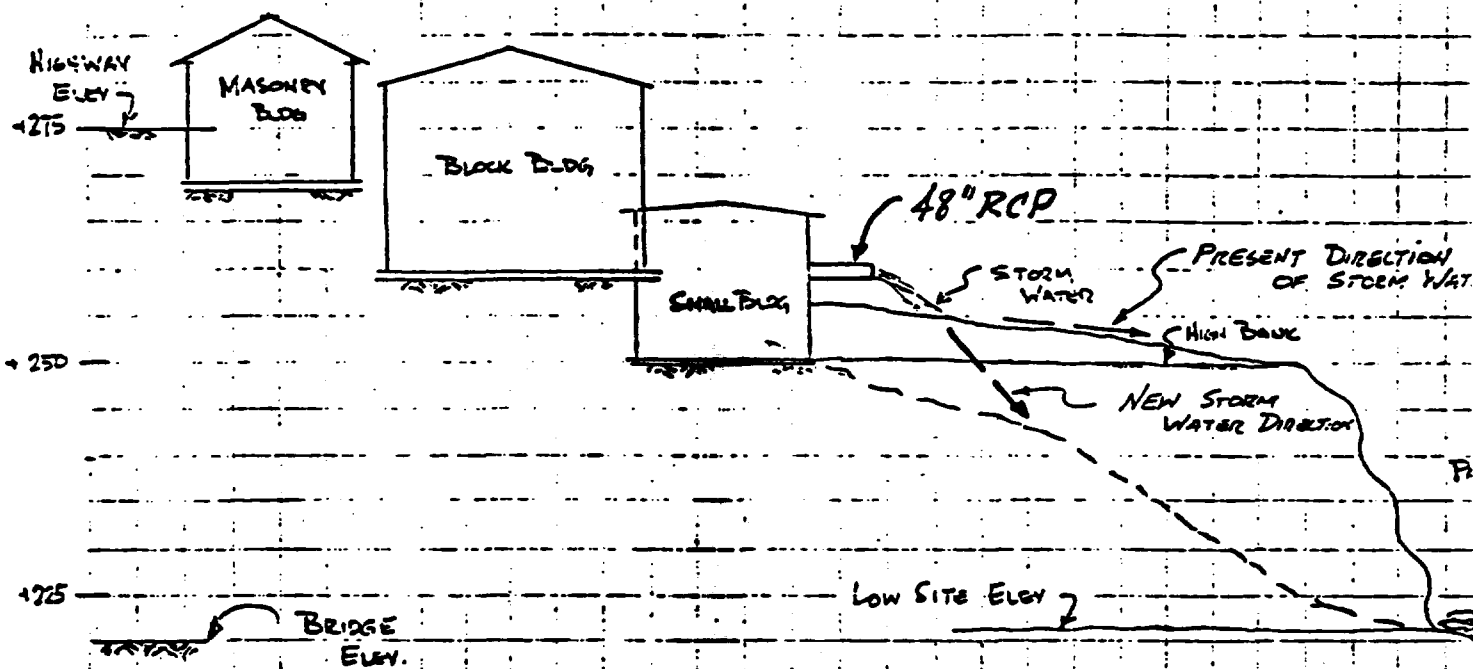


EXHIBIT G